fw

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/774,911	02/09/2004	J. Doss Halsey	11196.21	8853

7590 10/06/2006

NEIL K. NYDEGGER
NYDEGGER & ASSOCIATES
348 Olive Street
San Diego, CA 92103

EXAMINER	
KARIKARI, KWASI	

ART UNIT	PAPER NUMBER
2617	

DATE MAILED: 10/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/774,911	HALSEY, J. DOSS	
	Examiner	Art Unit	
	Kwasi Karikari	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 19 September 2006.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-20 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-20 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The Art Unit location of your application in the USPTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Art Unit 2617.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 09/19/2006 has been entered.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on 20 May 2004 is in compliance with the provision of 37 CFR 1.97, has been considered by the Examiner, and made of record in the application file.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-5,7,10-12,14,15 and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seraj (U.S. 6,055,434), (hereinafter Seraj), in view of Janky et al. (U.S. 5,552,772), (hereinafter Janky).

Regarding **claim 1,** Seraj discloses a system (cell area 170, see Fig. 2 and 3) for geolocating a cellular phone (mobile station 10), said system comprising:

a base station having a processor (communication network including BTS 140, MSC/VLR 40/35 and PSAP 20, see Fig. 1);

a plurality of dispersed transmitters (190) for transmitting respective beacon signals from respective known locations, wherein each said beacon signal has an identifying characteristic for said respective transmitter (plurality of transmitters 190 which are selectively placed throughout the geographic area, broadcast its own unique id data, see col. 3, lines 26-55);

a receive channel incorporated into said cellular phone (receiver coupled to mobile station 10 receives id, see col. 4, lines 26-63), with said receive channel being activated to receive phase information (each beacon has different id and frequencies, see col. 4 lines 20-25 and (phase is an inherent feature of frequency)) from said beacon signals whenever said cellular phone dials a predetermined number (mobile station originates an emergency call connection towards PSAP 20 and a receiver Rx 210, with a pre-allocated or assigned channel or frequency, receives broadcast data id from transmitter, see col. 3, lines 3-22 and col. 4, lines 60-66); and

a means for passing said identifying characteristic and said phase information for each said beacon signal to said base station for use by said processor in determining the geolocation of said cellular phone (transmitted data from transmitters are used to determine the location of the mobile station, see col. 5, lines 3-12), wherein said processor uses each beacon signal's identifying characteristic (plurality of transmitters 190 which are selectively placed throughout the geographic area, broadcast its own unique id data, see col. 3, lines 26-55; whereby unique id data is associated with "beacons signal's identifying characteristic") to ascertain a source transmitter for each beacon signal, and wherein said processor uses each beacon signal's phase information (receiver Rx 210 associated with the mobile station 10 monitors the pre-allocated channel or frequency and receives the broadcast identification data 200 from beacon 190, see col. 4, line 49 –col. 5, line 12 and col. 4, lines 7-25; whereby the frequency, which is related to phase delay, is associated with " signal's phase information") to determine the distance between each ascertained source transmitter and said cellular phone (transmitted data from transmitters are used to determine the location of the mobile station, see col. 5, lines 3-12); but fails specifically to disclose that each pair said respective beacons signals have initial phase relationship; an a mean for determining a received phase relationship between each pair of beacon signals received by the channel and comparing each initial phase relationship with the respective received phase relationship to calculate a phase delay for each beacon signal.

Janky teaches; each pair said respective beacons signals have initial phase relationship; and a mean for determining a received phase relationship between each pair of beacon signals received by the channel and comparing each initial phase relationship with the respective received phase relationship to calculate a phase delay for each beacon signal (see col. 7, line 54- col. 9, line 37).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Janky into the system of Seraj for the benefit of achieving a emergency location system that use low FM frequency signals, that have less distortion characteristics.

Regarding **claim 2,** Seraj further discloses a system as recited in claim 1 wherein said predetermined number is 911 (mobile station originates emergency to PSAP 20, see col. 3, lines 3-22).

Regarding **claim 3,** Seraj further discloses a system as recited in claim 1 wherein said identifying characteristic is a frequency of said beacon signal (transmitters 190 communicate data through individual frequencies or channels, see col. 4, lines 7-33).

Regarding **claim 4,** Seraj further discloses a system as recited in claim 1 wherein said identifying characteristic is a code (identification data broadcasted by each of the beacons uniquely identifies the beacon, see col. 2, lines 21-29) on said beacon signal.

Regarding **claim 5**, as recited in claim 1, Seraj fails to teach that at least one said transmitter is an AM radio station.

However, Janky teaches that the emergency location system could use AM sub carrier signals to monitor the present location of serviceperson (see col. 7, lines 7-21).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Janky into the system of Seraj for the benefit of achieving a emergency location system that use low FM frequency signals, that have less distortion characteristics.

Regarding **claims 7 and 15**, as recited in claims 1 and 12, Seraj and fails to teach that the system further comprising a means for synchronizing each transmitter.

However, Janky teaches that the system further comprising a means for synchronizing each transmitter (see, col. 9, line 38- col. 10, line 9).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Janky into the system of Seraj for the benefit of achieving a emergency location system that use low FM frequency signals, that have less distortion characteristics.

Regarding **claims 10 and 20**, as recited in claims 1 and 17, Seraj fails to teach that each said beacon signal has a wavelength longer than 150 meters to allow each said beacon signal to penetrate structures.

However, Janky teaches that the LC 13, which serves as a mobile station, receives low FM signals such as 19kHz (15,789.5 meters) that are attenuated less, in passing through walls, floors and ceilings (see col. 8, lines 17-35).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Janky into the system of Seraj for the benefit of achieving a emergency location system that use low FM frequency signals, that have less distortion characteristics and could pass through walls and ceilings.

Regarding **claim 11,** Seraj further discloses a system as recited in claim 1 wherein at least one said transmitter is configured to transmit a plurality of beacon signals of differing frequency (transmitters 190 communicate data through individual frequencies or channels, see col. 4, lines 7-33).

Regarding **claim 12,** Seraj discloses a system for geolocating a cellular phone in an urban area, said system comprising:

a plurality of dispersed transmitters for transmitting respective beacon signals into the urban area from respective known locations, wherein each said beacon signal has an identifying characteristic for said respective transmitter (plurality of transmitters 190 which are selectively placed throughout the geographic area, broadcast its own unique id data, see col. 3, lines 26-55);

a means coupled with the cellular phone for receiving said beacon signals (receiver coupled to mobile station 10 receives id, see col. 4, lines 26-63) and extracting

phase information and said identifying characteristics from each said beacon signal (mobile station originates an emergency call connection towards PSAP 20 and a receiver Rx 210, with a pre-allocated or assigned channel or frequency, receives broadcast data id from transmitter, see col. 3, lines 3-22 and col. 4, lines 60-63); and

a means for using said phase information and said identifying characteristics to geolocate the cellular phone (transmitted data from transmitters are used to determine the location of the mobile station, see col. 5, lines 3-12), wherein said using means ascertains a source transmitter for each beacon signal from each beacon signal's identifying characteristic (plurality of transmitters 190 which are selectively placed throughout the geographic area, broadcast its own unique id data, see col. 3, lines 26-55; whereby unique id data is associated with "beacons signal's identifying characteristic"); and wherein said using means determines the distance between each ascertained source transmitter and said cellular phone from each beacon signal's phase information, (receiver Rx 210 associated with the mobile station 10 monitors the pre-allocated channel or frequency and receives the broadcast identification data 200 from beacon 190, see col. 4, line 49 –col. 5, line 12 and col. 4, lines 7-25; whereby the frequency, which is related to phase delay, is associated with "phase information"); but fails to teach that each said beacon signal has a wavelength longer than 150 meters to allow each said beacon signal to penetrate structures in the urban area; and also fails specifically to disclose that each pair said respective beacons signals have initial phase relationship; and a mean for determining a received phase relationship between each pair of beacon signals received by the channel and comparing each initial phase

relationship with the respective received phase relationship to calculate a phase delay for each beacon signal.

However, Janky teaches that the LC 13, which serves as a mobile station, receives low FM signals such as 19kHz (15,789.5 meters) that are attenuated less, in passing through walls, floors and ceilings (see col. 8, lines 17-35). Janky further teaches pair said respective beacons signals have initial phase relationship; an a mean for determining a received phase relationship between each pair of beacon signals received by the channel and comparing each initial phase relationship with the respective received phase relationship to calculate a phase delay for each beacon signal (see col. 7,
line 54- col. 9, line 37).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Janky into the system of Seraj for the benefit of achieving a emergency location system that use low FM frequency signals, that have less distortion characteristics.

Regarding **claim 14,** Seraj further discloses a system as recited in claim 12 wherein said means coupled with the cellular phone for receiving said beacon signals and extracting phase information and said identifying characteristics from each said beacon signal comprises a receive channel incorporated into said cellular phone, with said receive channel being activated to receive said beacon signals whenever said cellular phone dials a predetermined number (mobile station originates an emergency call

connection towards PSAP 20 and a receiver Rx 210, with a pre-allocated or assigned channel or frequency, receives broadcast data id from transmitter, see col. 3, lines 3-22 and col. 4, lines 60-63 and Fig. 3).

Regarding **claim 17,** Seraj discloses a method for geolocating a cellular phone within a service area, said method comprising the steps of:

transmitting beacon signals into the service area from a plurality of dispersed predetermined locations, each beacon signal having a different identifying characteristic (plurality of transmitters 190 which are selectively placed throughout the geographic area, broadcast its own unique id data, see col. 3, lines 26-55);

receiving said beacon signals at the cellular phone (receiver coupled to mobile station 10 receives id, see col. 4, lines 26-63);

extracting phase information and said identifying characteristic from said beacon signals (mobile station originates an emergency call connection towards PSAP 20 and a receiver Rx 210, with a pre-allocated or assigned channel or frequency, receives broadcast data id from transmitter, see col. 3, lines 3-22 and col. 4, lines 60-63); and using each identifying characteristic to ascertain a source transmitter for each beacon signal and using each beacon signal's phase information (receiver Rx 210 associated with the mobile station 10 monitors the pre-allocated channel or frequency and receives the broadcast identification data 200 from beacon 190, see col. 4, line 49 –col. 5, line 12 and col. 4, lines 7-25; whereby the frequency, which is related to phase delay, is associated with " signal's phase information") to determine the distance between each

ascertained source transmitter and said cellular phone to determine the position of said cellular phone (transmitted data from transmitters are used to determine the location of the mobile station, see col. 5, lines 3-12); but fails specifically to disclose that each pair said respective beacons signals have initial phase relationship; an a mean for determining a received phase relationship between each pair of beacon signals received by the channel and comparing each initial phase relationship with the respective received phase relationship to calculate a phase delay for each beacon signal.

Janky teaches; each pair said respective beacons signals have initial phase relationship; and a mean for determining a received phase relationship between each pair of beacon signals received by the channel and comparing each initial phase relationship with the respective received phase relationship to calculate a phase delay for each beacon signal (see col. 7, line 54- col. 9, line 37).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Janky into the system of Seraj for the benefit of achieving a emergency location system that use low FM frequency signals, that have less distortion characteristics.

Regarding **claim 18,** Seraj further discloses the method as recited in claim 17 wherein said receiving step comprises the step of activating a receive channel whenever said cellular phone dials a predetermined number (mobile station originates an emergency

call connection towards PSAP 20 and a receiver Rx 210, with a pre-allocated or assigned channel or frequency, receives broadcast data id from transmitter (see col. 3, lines 3-22 and col. 4, lines 60-63).

Regarding **claim 19,** as recited in claim 17, Janky teaches that the method <u>further comprises the steps of receiving said beacon signals with a system receiver at known location and using said system receiver to determine each initial phase relationship</u> (see col. 7, line 54- col. 9, line 37).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Janky into the system of Seraj for the benefit of achieving a emergency location system that use low FM frequency signals, that have less distortion characteristics.

5. **Claims 6,8,9, and 16 are rejected under U.S.C. 103(a) as being unpatentable over Seraj in view of Janky and further in view of Krasner et al. (U.S. 20040092275), (hereinafter Krasner).**

Regarding **claim 6**, as recited in claims 1, the combination of Seraj and Janky fails to teach the system further comprising calibration means to verify the accuracy of said system.

Krasner teaches that the digital processing system 105 is coupled to the

clock 103 and could be recalibrated the time thereby synchronizing the clock to other clocks in other cellular base stations (see Page 4, line [0035]).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Krasner into the system of Seraj and Janky for the benefit of achieving a synchronization system whereby clock at the base station could be recalibrated to an affect the synchronization of the system.

Regarding **claims 8 and 16**, as recited in claims 7 and 15, Krasner further teaches that the said synchronizing means comprises a common time reference supplied to each transmitter from a Global Positioning System (GPS) (base station receives time tag TR1 that represents the GPS time which is associated with the maker M1, see Page 4, lines [0036 and 0037] and Fig. 1).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Krasner into the system of Seraj for the benefit of achieving a synchronization system whereby signals from the base station and time from the GPS are used to determine the location of a mobile receiver station.

Regarding **claim 9**, as recited in claim 7, Krasner further teaching's of base station receiving a time tag TR1 that represent a GPS time (see Page 4, lines [0036 and 0037] and Fig. 1), meets the limitations of plurality of atomic clocks to provide a common time reference to each transmitter.

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Krasner into the system of Seraj for the benefit of achieving a synchronization system whereby signals from the base station and time from the GPS are used to determine the location of a mobile receiver station.

7. **Claim 13 is rejected under U.S.C. 103(a) as being unpatentable over Seraj in view of Janky and further in view Duffett-Smith et al. (U.S. 6,529,165), (hereinafter Duffett).**

Regarding **claim 13**, as recited in claim 12, the combination of Seraj and Janky fails to teach that the system wherein calculating the geolocation of the cellular phone comprises a processor configured to process a Maximum Likelihood Method (MLM) algorithm to eliminate phase-related location ambiguities.

Duffett teaches that the relative position of handsets may be computed using maximum likelihood method (see col. 7, lines 8-26).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Duffett into the system of Seraj and Janky for the benefit of achieving a radio positioning system that uses maximum likelihood method to compute for the location of a receiver.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Panasik et al., (U.S 6,806,830) teaches an electronic device precision location via local broadcast signal.

McCall et al., (U.S 6,738,628) teaches an electronic physical asset tracking.

Gaal et al., (U.S 20030119496 A1) teaches a base station time calibration using position measurement data sent by mobile stations during regular position location sessions.

Radin (U.S 6,867,693) teaches spatial position determination system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kwasi Karikari whose telephone number is 571-272-8566. The examiner can normally be reached on M-F (8 am - 4pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Feild can be reached on 571-272-4090. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8566.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kwasi Karikari
Patent Examiner.

TEMICA BEAMER
PRIMARY EXAMINER